

**IN THE CLAIMS**

**This listing of the claims replaces all prior versions of the claims in the application.**

1. (Withdrawn) An isolated polypeptide selected from the group consisting of:
  - a) a polypeptide comprising an amino acid sequence of SEQ ID NO:1,
  - b) a polypeptide comprising a naturally occurring amino acid sequence at least 90% identical to an amino acid sequence of SEQ ID NO:1,
  - c) a biologically active fragment of a polypeptide having an amino acid sequence of SEQ ID NO:1, and
  - d) an immunogenic fragment of a polypeptide having an amino acid sequence of SEQ ID NO:1.
2. (Withdrawn) An isolated polypeptide of claim 1, having a sequence of SEQ ID NO:1.
3. (Withdrawn) An isolated polynucleotide encoding a polypeptide of claim 1.
4. (Withdrawn) An isolated polynucleotide encoding a polypeptide of claim 2.
5. (Withdrawn) An isolated polynucleotide of claim 4, having a sequence of SEQ ID NO:2.
6. (Withdrawn) A recombinant polynucleotide comprising a promoter sequence operably linked to a polynucleotide of claim 3.
7. (Withdrawn) A cell transformed with a recombinant polynucleotide of claim 6.
8. (Withdrawn) A transgenic organism comprising a recombinant polynucleotide of claim 6.
9. (Withdrawn) A method for producing a polypeptide of claim 1, the method comprising:

- a) culturing a cell under conditions suitable for expression of the polypeptide, wherein said cell is transformed with a recombinant polynucleotide, and said recombinant polynucleotide comprises a promoter sequence operably linked to a polynucleotide encoding the polypeptide of claim 1, and
- b) recovering the polypeptide so expressed.

10. (Withdrawn) A method of claim 9, wherein the polypeptide has the sequence of SEQ ID NO:1.

11. (Withdrawn) An isolated antibody which specifically binds to a polypeptide of claim 1.

12. (Withdrawn) An isolated polynucleotide selected from the group consisting of:

- a) a polynucleotide comprising a polynucleotide sequence of SEQ ID NO:2,
- b) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to a polynucleotide sequence of SEQ ID NO:2,
- c) a polynucleotide complementary to a polynucleotide of a),
- d) a polynucleotide complementary to a polynucleotide of b), and
- e) an RNA equivalent of a)-d).

13. (Withdrawn) An isolated polynucleotide comprising at least 60 contiguous nucleotides of a polynucleotide of claim 12.

14. (Currently Amended) A method for detecting a target polynucleotide in a sample, said target polynucleotide, selected from the group consisting of:

- a) a polynucleotide comprising a polynucleotide sequence of SEQ ID NO:2,
- b) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to a polynucleotide sequence of SEQ ID NO:2, said polynucleotide encodes a polypeptide having methyltransferase activity,
- c) a polynucleotide completely complementary to a polynucleotide of a),

- d) a polynucleotide completely complementary to a polynucleotide of b), and
- e) an RNA equivalent of a)-d); the method comprising:
  - [[a]] i) hybridizing the sample with a probe comprising at least 20 contiguous nucleotides comprising a sequence complementary to said target polynucleotide in the sample, ~~and which probe specifically hybridizes to said target polynucleotide~~, under conditions whereby a hybridization complex is formed between said probe and said target polynucleotide or fragments thereof, and
  - [[b]] ii) detecting the presence or absence of said hybridization complex, and, optionally, if present, the amount thereof.

15. (Original) A method of claim 14, wherein the probe comprises at least 60 contiguous nucleotides.

16. (Currently Amended) A method for detecting a target polynucleotide in a sample, said target polynucleotide selected from the group consisting of:

- a) a polynucleotide comprising a polynucleotide sequence of SEQ ID NO:2,
- b) a polynucleotide comprising a naturally occurring polynucleotide sequence at least 90% identical to a polynucleotide sequence of SEQ ID NO:2, said polynucleotide encodes a polypeptide having methyltransferase activity,
- c) a polynucleotide completely complementary to a polynucleotide of a),
- d) a polynucleotide completely complementary to a polynucleotide of b), and
- e) an RNA equivalent of a)-d); the method comprising:
  - [[a]] i) amplifying said target polynucleotide or fragment thereof using polymerase chain reaction amplification, and
  - [[b]] ii) detecting the presence or absence of said amplified target polynucleotide or fragment thereof, and, optionally, if present, the amount thereof.

17. (Withdrawn) A composition comprising a polypeptide of claim 1 and a pharmaceutically acceptable excipient.

18. (Withdrawn) A composition of claim 17, wherein the polypeptide has an amino acid sequence of SEQ ID NO:1.

19. (Withdrawn) A method for treating a disease or condition associated with decreased expression of functional SAM-MT, comprising administering to a patient in need of such treatment the composition of claim 17.

20. (Withdrawn) A method for screening a compound for effectiveness as an agonist of a polypeptide of claim 1, the method comprising:

- a) exposing a sample comprising a polypeptide of claim 1 to a compound, and
- b) detecting agonist activity in the sample.